EYE TUMOR PATIENTS AT TUMOR DIVISION EYE CLINIC SANGLAH GENERAL HOSPITAL BALI-INDONESIA

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Objective: Tumors in the eye are type of tumors that could afflict eyeball and adnexa. Even though, the incidence is rare, these tumors that usually are secondary tumors cause by cancer spread from other parts of the body, especially the breast, lung, bowel or prostate. Two types of primary tumors arise within the eye itself are known as retinoblastoma in children and melanoma in adults. This study aims to obtain basic figure of eye tumor patients at Sanglah General Hospital Bali-Indonesia, in which these data can be used as a reference for further research. **Methods:** Descriptive and retrospective methods were applied to observe the patient who came during the period of 1 January 2005 until 30 September 2010. The numbers were taken from the medical records. **Results:** There were 44 patients recruited, consisting of 59.1% male and 40.9% female. A number of 29.5% of them are between 61-70 years old, 34.1% are from Denpasar, and 34.1% are farmers. There were 95.5% of the patients suffered from an eye lump, and 40.9% of them came with 0.00 logMar of visual acuity. About 47.7% of the tumor grew in the superior palpebra. Pathology anatomy test shows 20.5% Squamous Cell Carcinoma (SCC), 11.4% Basal Cell Carcinoma (BCC), and 11.4% papilloma. **Conclusions:** The patients at tumor division, eye clinic of Sanglah General Hospital were mostly male, with major age range of 61-70 years old that mainly live in Denpasar as farmers. Their major complaint was the eye lump, which mainly found in the superior palpebra. The pathology anatomy result shows that SCC and BCC was the top and second most found illness. This study can be used as a reference for future research.

Keywords: eye, tumor, medical, records, palpebra

INTRODUCTION

Tumor is an abnormal growth or bulging of the body. The pathologist defined tumor as an excessive and irreversible tissue growth. Tumor in outline can be divided into two which is benign tumor and malignant tumor. Benign tumor has a limited growth whereas malignant tumor has an unlimited growth.[1,2]

Eye tumor is a tumor that strike the eye ball and its content, such as palpebra, muscles, optic nerve, and lacrimal gland. Primary eye tumor is a tumor originates from the eye ball tissue and its content whereas secondary eye tumor is a metastase from other part of the body. Histologically, there are more than 300 types of tumor that can differentiate from the eye ball and its content.[1-3]

The incidence rate can be varying in each country. Eye tumors patients distribute based on gender also come in vary. In Singapore, male is 53.6% and female is 46.4%. While in Japan, male is 46.72% and female 53.27%. In Nepal, the greatest amount are patients in group age of 61-70 years old (25.42%) and the most common location

of the tumor are conjunctiva (50.85%). Research in Nepal also stated that the most common type of tumor are Squamous Cell Carcinoma (SCC) which is 66.1%, followed by Basal Cell Carcinoma (BCC) which is 10.2%. The incidence rate of eye tumor is pretty rare compare to other eye disease. However, quick diagnosis and precise treatment were needed. If neglected, it can cause permanent disability, such as loss of visual function which can cause lessening quality of patient's life.[4-6]

Eye tumor can be caused by several risk factors like ultraviolet exposure, chemical agent, and also genetic factors which believed to have a role in tumor growth. Pathophysiology of intra tumor formation or periocular includes proliferation of cells tissue that are irreversible, infiltration of inflammatory cells, cyst formation, deposit and exudation as well as the spread from other tissue.[1,2]

Eye tumor patients usually come with complaints of a lump that can cause changes in facial shape, proptosis, periokuler pain, inflammation, lacrimation, or any obvious tumor.[2,7] The diagnosis of tumors in the eyes based on histological examination or anatomical pathology, however, it is often encountered difficulties in hystopathologic examination for intra oculi tumors. The rapid growth of a tumor can be one indicator of malignancy, although it's not always the case.

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There are times when malignant tumors grow slowly and otherwise benign tumor can also grow rapidly.[1] Treatment of eye tumors varies depending on the size, location and type of tumor. Some eye tumors require only drug therapy, some require more radical action like total removal of tumor mass and others do not require therapy. Sometimes after the removal of the tumor mass, patients still require additional therapy such as radiotherapy and chemotherapy.[2,8]

Prognosis or survival rate of eye tumor patient reached 80% meaning that there is still a pretty good life expectancy. The death rate is strongly influenced by the stage of the tumor itself. Of course at an advanced stage, the prognosis is worsen and in certain types, the recurrence rate are quite high.[8]

This paper aims to obtain the characteristic of tumor patient at Tumor Division, Sanglah General Hospital, Denpasar, Bali-Indonesia. This data can be used as baseline for reference of further research.

PATIENTS AND METHOD

A number of 44 patients were observed in this retrospective descriptive study during the period of January 1st 2005 until September 30th 2010 at Sanglah General Hospital Bali-Indonesia. Institutional review board/ethics committee approval was obtained from Local Medical Center and this study adhered to the tenets of the Declaration of Helsinki.

Data taken from the book of registration, medical records of tumor division eye clinic, and medical records of Sanglah General Hospital Bali-Indonesia. Data taken in the study include gender, age, address, occupation, complaint, sharp vision, tumor location, clinical diagnosis, and anatomical pathology results. The data obtained were then descriptively analyzed by applying statistical software package.

RESULTS

During the period from January 1st 2005 to September 30th 2010, there were 117 patients who came to tumor division of eye clinic of Sanglah Hospital in Denpasar, Bali-Indonesia. Forty four patients included in this study. The demographic data of the patients were presented in Table 1. As can be seen from Table 1, gender based patient distribution, male have a larger proportion (59.1%) than female (40.9%). From the age variables, cases of eye tumors most commonly found in age group of 61-70 years, as many as 29.5%. Eye tumor patients mostly come from Denpasar (34.1%). Jobs dominant patients are farmers that are 34.1%.

Data of the main complaint patients were listed in Table 2. The most common complaint of patients are lump on the eye (95.5%). A number of 40.9% of patients have visual acuity of 0.00

logMar. Based on the location, the tumor grew 47.7% in palpebra superior.

Table 1
Demographic of Eye Tumor Patients at Sanglah General Hospital Denpasar, Bali-Indonesia during period of January 1st 2005 - September 30th 2010

Characteristic	n (%)
Gender	
Male	26 (59.10)
Female	18 (40.90)
Age (years)	
11-20	6 (13.60)
21-30	4 (9.10)
31-40	5 (11.40)
41-50	10 (22.70)
51-60	5 (11.40)
61-70	13 (29.50)
71-80	0 (0.00)
81-90	1 (2.30)
Home of regency	
Denpasar	15 (34.10)
Badung	8 (18.20)
Tabanan	5 (11.40)
Gianyar	4 (9.10)
Buleleng	3 (6.80)
Jembrana	3 (6.80)
Klungkung	3 (6.80)
Karangasem	2 (4.50)
Bangli	1 (2.30)
Occupation	
Farmer	15 (34.10)
Private sector	12 (27.27)
State employee	10 (22.70)
Students	7 (15.90)

Table 2
Eye Tumor Patients Circumstances

Eye condition	n (%)
Complaint	
Lump	42 (95.50)
Proptosis	2 (4.50)
Visual Acuity (LogMar)	
0.00	18 (40.90)
0.22	3 (6.80)
0.40	4 (9.10)
0.52	4 (9.10)
0.70	3 (6.80)
1.00	1 (2.30)
1.08	5 (11.40)
1.18	1 (2.30)
1.80	2 (4.50)
2.00	3 (6.80)
Tumor location	
Palpebra superior	21 (47.70)
Conjuntiva	16 (66.40)
Palpebra inferior	5 (11.40)
Orbita	2 (4.50)

Tumor type based on pathology anatomy was presented in Table 3.

Table 3
Pathology Anatomy of Eye Tumor Patients at Sanglah General Hospital Denpasar, Bali-Indonesia period of January 1st 2005 - September 30th 2010

Pathology anatomy	n (%)
Squamous cell carcinoma (SCC)	9 (20.50)
Basal cell carcinoma (BCC)	5 (11.40)
Papiloma	5 (11.40)
Adenocarcinoma	4 (9.10)
Epidermal cyst	4 (9.10)
Actinic keratosis	3 (6.80)
Lymphoma	3 (6.80)
Lipoma	2 (4.50)
Nevus	2 (4.50)
Adenoma	1 (2.30)
Atheroma	1 (2.30)
Benign peripheral nerve sheath tumor	1 (2.30)
Dermoid cyst	1 (2.30)
Hemangioma cavernosa	1 (2.30)
Rhabdomyosarcoma	1 (2.30)
Xanthoma	1 (2.30)

Tumor type based on location was presented in Table 4.

Table 4
Eye Tumor Type Based on Location

Location and tumor type	n (%)
Conjungtiva	
Squamous cell carcinoma (SCC)	7 (15.90)
Actinic keratosis	3 (6.80)
Papiloma	2 (4.50)
Epidermal cyst	1 (2.30)
Lipoma	1 (2.30)
Lymphoma	1 (2.30)
Nevus	1 (2.30)
Palpebra Superior	
Epidermal cyst	3 (6.80)
Papiloma	3 (6.80)
Basal cell carcinoma (BCC)	2 (4.50)
Adenocarcinoma	2 (4.50)
Squamous cell carcinoma (SCC)	2 (4.50)
Adenoma	1 (2.30)
Atheroma	1 (2.30)
Benign peripheral nerve sheath tumor	1 (2.30)
Dermoid cyst	1 (2.30)
Hemangioma cavernosa	1 (2.30)
Lipoma	1 (2.30)
Lymphoma	1 (2.30)
Nevus	1 (2.30)
Xanthoma	1 (2.30)
Palpebra inferior	
Basal cell carcinoma (BCC)	3 (6.80)
Adenocarcinoma	2 (4.50)
Orbita	
Lymphoma	1 (2.30)
Rhabdomyosarcoma	1 (2.30)

Characteristic of tumor based on occupation was listed in Table 5.

Table 4
Eye Tumor Type Based on Occupation

Occupation	n (%)
Student	
Lipoma	2 (4.50)
Benign peripheral nerve sheath tumor	1 (2.30)
Dermoid cyst	1 (2.30)
Epidermal cyst	1 (2.30)
Nevus	1 (2.30)
Rhabdomyosarcoma	1 (2.30)
Farmer	
Squamous cell carcinoma (SCC)	9 (20.50)
Actinic keratosis	1 (2.30)
Basal cell carcinoma (BCC)	2 (4.50)
Papiloma	1 (2.30)
Xanthoma	1 (2.30)
State employee	
Epidermal cyst	3 (6.80)
Papiloma	2 (4.50)
Adenocarcinoma	1 (2.30)
Adenoma	1 (2.30)
Actinic keratosis	1 (2.30)
Atheroma	1 (2.30)
Rhabdomyosarcoma	1 (2.30)
Hemangioma cavernosa	1 (2.30)
Others	
Basal cell carcinoma (BCC)	3 (6.80)
Lymphoma	3 (6.80)
Adenocarcinoma	2 (4.50)
Papiloma	2 (4.50)
Actinic keratosis	1 (2.30)
Nevus	1 (2.30)

DISCUSSION

In this study, there were 44 eye tumor patients at Tumor Division Sanglah Gereal Hospital Denpasar, Bali-Indonesia during the period of January 1st 2005 to September 30th 2010. Of the 44 patients, the number of male patients higher (59.1%) compared to the number of female patients (40.9%). Distribution of eye tumor patients varies by sex. Several studies in various countries have shown different results. Research in Singapore showed similar results which is 53.6% male and 46.4% female. In contrast to studies in Japan, where female patients is more (53.27%) than male patients (46.72%).[5-7]

Eye tumors at Sanglah General Hospital Denpasar, Bali-Indonesia are frequently occurs in male than female. This condition is associated with several factors that allegedly can trigger tumor growth, such as smoking, drinking alcohol, and exposure to ultraviolet light. In Balinese culture, more men have the habit of smoking, drinking alcohol, and work outside the house so they are more often exposed to sunlight compared to female. All these conditions cause males more

often than women with tumors.[1,9] According to the age group, the most frequent eye tumor patients are at age group of 61-70 years (29.7%). These results are similar to the results of research in Nepal, which is 25.42% in the same age group. This condition is in accordance with the theory that tumor incidence increases with age, because with increasing age, the duration of exposure to substances that are carcinogenic increasing. Thus, patients with older age have a higher risk of suffering from tumors compared to the younger age.[7,8]

Eye tumor patients mostly come from Denpasar (34.1%). Denpasar is the provincial capital where the population with quite high levels of education and have many accessible health centers, therefore, this people checked up their health faster if they felt abnormality in the eye. Based on this, there is the possibility of patients in other districts are also quite a lot but because they live in remote areas, they do not immediately went to the health centers to seek for medication.[9]

Occupation of eye tumor patients most often were farmers (34.1%). Indonesia is an agrarian country that most of the inhabitants work as farmers, including in Bali. Farmers are particularly vulnerable because those tumors are often exposed to sunlight containing ultraviolet which is theoretically have a very important role in triggering tumor growth.[7,9]

Eye tumor patients come with a variety of different complaints, such as a lump, protrusion of the eyeball or proptosis, pain, and a sharp decline in eyesight. In this study, the only two major complaints were found which makes the patient came for a treatment, which are lump and proptosis. Of the 44 patients who came, 95.5% complained of a lump. Lumps and proptosis in cosmetically is very annoying and lowers your confidence so that the second complaint of patients is a major reason patients come treatment. Drastic reduction of vision in general only occurs in 1 eye only, so most patients are not aware because the other eye is still good. In this study, 40.9% visual acuity od the eye with a tumor when the patient first arrived is 0.00 logMAR. Thus patients do not come for treatment because of blurred eyes but because there are lumps that are considered annoying cosmetically.[10,11]

Clinically, eye tumor can be differing at location, like at palpebral superior, inferior palpebra, conjunctiva and orbital cavity. In this research, the most common tumor location was at superior palpebra namely 47.7%. These results are different from the results of research in Nepal, where the most common location is at the conjunctiva (50.85%). Palpebra superior has a different anatomical structures when compared with the inferior palpebra and conjunctiva. In superior palpebra there are more glands that can

differentiate into several types of tumors. Palpebra superior is in the outermost regions thus it can have a long enough exposure to ultraviolet light, which ultraviolet believed as one of the carcinogenic cause.[12]

Based on the distribution of tumor anatomic pathologically, the most often tumors are SCC and BCC. These results are similar to studies conducted in Nepal. Indonesia is located on the equator where the sun shines almost all year round. Exposure to ultraviolet light is strongly suspected as one of the triggers of tumor growth.[6,7]

The result of anatomic pathological examination based on the location of the tumor showed that the most frequent location of the SCC is in the conjunctiva. SCC can grow in the conjunctiva and palpebra. But in this study, SCC is more common in the conjunctiva. This condition is in accordance with the theory that the accumulated exposure to ultraviolet rays of the conjunctiva can cause mutations in tumor suppressor gene p 53 which is widely available on the conjunctiva. This situation makes the occurrence of dysplasia in squamous cells came easier that exist in the conjunctiva.[6,12]

According to the distribution of anatomic pathological examination results based on the patient's occupation, the most prominent is SCC which often diagnosed in a farmer. Farmers usually expose by the sunlight, where exposure to excessive sunlight are the main factors that play a role in triggering tumor growth.[13]

CONCLUSIONS

From these research it can be concluded that subject research are 44 patients, consisting of 59.1% male and 40.9% female. Of these amount, 29.5% were in age group 61-70 years, 34.1% came from Denpasar, and 34.1% worked as farmers. A total of 95.5% patients present with symptoms of a lump on the eye, where 40.9% of patients came first with visual acuity 0.00 logMar. A total of 47.7% tumor growth in palpebra superior. The anatomic pathological examination results were as follows, 20.5% SCC, 11.4% BCC, and 11.4% papilloma.

Based on location of the tumor and anatomic pathology results, the most common tumors of the conjunctiva is the SCC (15.9%). However if looked from the patient's occupations, the SCC more often suffered by farmers (20.5%).

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